


CLEAN VERSION OF AMENDMENTS

In the Specification:

Replace the paragraph starting on page 33, line 20, with:

C1  Mechanism 40 is preferably the five-member linkage 40 described above, but can also be one of several types of mechanisms. For example, mechanisms disclosed in [co-pending patent applications serial nos. 08/374,288, 08/400,233, 08/489,068, 08/560,091, 08/623,660, 08/664,086, 08/709,012, and 08/736,161] U.S. Patent Nos. 5,731,804, 5,767,839, 5,721,566, 5,805,140, 5,691,898, 6,028,593, 6,024,576, and 5,828,197, all incorporated by reference herein, can be included. Mouse 12 can alternatively be a puck, joystick, or other device or article coupled to linkage 40, as described above.

In the Claims:

Claims pending in this application are listed below. Claims changed by this amendment are labelled as "amended."

Please cancel claims 35-38 without prejudice.

C2 39. (amended) A force feedback interface device as recited in claim 42 further comprising an indexing button provided on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user.

P 40. (amended) A force feedback interface device as recited in claim 42 wherein said actuator is controlled by a local processor in response to signals received from said host computer.

Please cancel claim 41 without prejudice.

P 42. (amended) A force feedback interface device in communication with a host computer, the force feedback interface device comprising:

C3 at least one sensor that detects a motion or position of a manipulandum of said force feedback interface device when manipulated by a user, wherein a location of a cursor displayed by said host computer is responsive to said manipulation of said manipulandum by said user;

at least one actuator operative to output forces to a user of said force feedback interface device; and

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a force functionality button provided on said force feedback interface device and manipulatable by said user, wherein said force functionality button toggles the output of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon a graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user, wherein said force sensation is applied by said actuator when or after said force functionality button is depressed by said user, wherein said force feedback sensation is associated with a cursor crossing a border of an icon, and wherein said force feedback sensation is a resistive spring force resisting motion of said cursor into said icon.

43. A force feedback interface device as recited in claim 42 wherein said icon is selected by said cursor when said cursor moves into a predetermined threshold distance into said icon.

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44. A force feedback interface device as recited in claim 42 wherein said spring force enables an isometric control mode, wherein an amount of penetration of the mouse against the spring force controls a speed of scrolling of a document displayed by said host computer.

Please cancel claims 45-48 without prejudice.

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49. (amended) A method as recited in claim 52 further comprising providing an indexing button on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user.

50. (amended) A method as recited in claim 52 wherein said actuator is controlled by a local processor in response to signals received from said host computer.

Please cancel claim 51 without prejudice.

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52. (amended) A method for controlling a force feedback interface peripheral, said force feedback interface peripheral including a force functionality button, said method comprising:
providing a force feedback interface peripheral including at least one sensor and at least one actuator, said actuator operative to output forces to a user of said force feedback interface peripheral;
providing a button on said force feedback interface peripheral that can function as a force functionality button, said force functionality button manipulatable by said user;

enabling a cursor to be controlled on a host computer, the displayed location of said cursor being responsive to manipulation of a portion of said force feedback interface peripheral by said user; and

enabling said force functionality button to toggle the application of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon the graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user, wherein said force sensation is applied by said actuator when or after said force functionality button is depressed by said user, wherein said force feedback sensation is associated with a cursor crossing a border of an icon, and wherein said force feedback sensation is a resistive spring force resisting motion of said cursor into said icon.

53. A method as recited in claim 52 wherein said icon is selected by said cursor when said cursor moves into a predetermined threshold distance into said icon.

54. A method as recited in claim 52 wherein said spring force enables an isometric control mode, wherein an amount of penetration of the mouse against the spring force controls a speed of scrolling of a document displayed by said host computer.

Please cancel claim 55 without prejudice.

56. (amended) A force feedback interface device as recited in claim 67 wherein said first force functionality mode is a pressure scrolling mode, wherein a spring force is output on said manipulandum opposing the movement of said cursor through a border of said designated graphical object or region, and wherein a rate of scrolling of an object is controlled by an amount of said movement of said cursor.

Please cancel claims 57-60 without prejudice.

Please add the following claims:

61. (new) A force feedback interface device as recited in claim 42 wherein said button is a first button that can function as a first force functionality button, and further comprising:
a second button on said force feedback interface peripheral that can function as a second force functionality button, said second force functionality button manipulatable by said user, wherein manipulation of said second force functionality button by said user causes a second force functionality mode of said force feedback interface device to be active, said second force functionality mode being different from said first force functionality mode.

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D 62. (new) A force feedback interface device as recited in claim 61 wherein said second force functionality button toggles a pressure scrolling mode, wherein a spring force is output in said pressure scrolling mode on said manipulandum opposing the movement of said cursor through a border of a designated graphical object or region, and wherein a rate of scrolling of an object is controlled by an amount of said movement of said cursor.

63. (new) A force feedback interface device in communication with a host computer, the force feedback interface device comprising:

at least one sensor that detects a motion or position of a manipulandum of said force feedback interface device when manipulated by a user, wherein a location of a cursor displayed by said host computer is responsive to said manipulation of said manipulandum by said user;

at least one actuator operative to output forces to a user of said force feedback interface device;

P1. an indexing button provided on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user; and

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CONT. a force functionality button provided on said force feedback interface device and manipulatable by said user, wherein said force functionality button toggles the output of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon a graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user.

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D 64. (new) A method as recited in claim 52 wherein said button is a first button that can function as a first force functionality button, and further comprising providing a second button on said force feedback interface peripheral that can function as a second force functionality button, said second force functionality button manipulatable by said user, wherein manipulation of said second force functionality button by said user causes a second force functionality mode of said force feedback interface device to be active, said second force functionality mode being different from said first force functionality mode.

65. (new) A method as recited in claim 64 wherein said second force functionality button is enabled to toggle a pressure scrolling mode, wherein a spring force is output in said pressure scrolling mode on said manipulandum opposing the movement of said cursor through a border of a designated graphical object or region, and wherein a rate of scrolling of an object is controlled by an amount of said movement of said cursor.

66. (new) A method for controlling a force feedback interface peripheral, said force feedback interface peripheral including a force functionality button, said method comprising:

providing a force feedback interface peripheral including at least one sensor and at least one actuator, said actuator operative to output forces to a user of said force feedback interface peripheral;

providing a button on said force feedback interface peripheral that can function as a force functionality button, said force functionality button manipulatable by said user;

providing an indexing button on said force feedback interface peripheral, said indexing button enabling an indexing mode when depressed by said user;

enabling a cursor to be controlled on a host computer, the displayed location of said cursor being responsive to manipulation of a portion of said force feedback interface peripheral by said user; and

enabling said force functionality button to toggle the application of a force feedback sensation by said actuator when said cursor encounters a designated graphical object or region upon the graphical display of said host computer, said toggling based on said manipulation of said force functionality button by said user.